

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present amendments and in light of the following discussion, is respectfully requested.

After entry of this amendment, Claims 1-2 and 4-17 are pending. Claims 1, 4-8 and 14-17 are amended, and Claim 3 is canceled without prejudice or disclaimer. No new matter is introduced.

In the outstanding Office Action, Claims 1-2, 4-9, 13 and 16-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach (U.S. Patent No. 4,885,782, hereafter Eberbach) in view of Fujimori (U.S. Patent No. 6,026,169, hereafter Fujimori); Claims 3, 12 and 14-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach and Fujimori and in view of Yamada (U.S. Patent No. 5,757,931, hereafter Yamada); Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach and Fujimori in view of Packard (U.S. Patent No. 7,035,417, hereafter Packard); and Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach and Fujimori in view of Hirade (U.S. Patent No. 7,119,267, hereafter Hirade).

In reply, amended Claim 1 is amended to incorporate the features recited in Claim 3, and Claim 3 is canceled without prejudice or disclaimer. Thus, amended Claim 1 now recites an audio signal processing apparatus adapted for delivering an audio signal to a speaker system, including a frequency dividing filter, at least two drive units, and

an FIR filter configured to process the input audio signal on the basis of an inverse correction characteristic corresponding to an overall impulse response of the speaker system, the input audio signal being processed to compensate for a shift between phases of respective sound waves radiated from respective drive surfaces of the at least two drive units of the speaker system, the shift being caused by the relative physical locations of the respective drive surfaces. (Emphasis added).

Turning to the applied references, neither Eberbach nor Fujimori disclose an FIR filter of any kind, as the outstanding Office Action acknowledges.¹ Therefore, no combination of Eberbach and Fujimori describes every feature recited in amended Claim 1, and its corresponding dependent claims.

Though Claims 1-2, 4-9, 13 and 16-17 were not rejected as being unpatentable over the combination of Eberbach and Fujimori with Yamada, Yamada describes a signal processing and acoustic reproducing apparatus including a low-pass filter (2), a down-sampling processing circuit (3), an FIR filter (4), an oversampling LPF (5) and an adding circuit (7) all connected in series between an input terminal (1) and an output terminal (8).² Yamada also describes that a high-pass filter (6) is also connected between the input terminal (1) and output terminal (8). Yamada does not describe, however, that the FIR filter (4) directly processes the input digital signal. Instead, Yamada describes that the input digital signal is down-sampled before being provided to the FIR filter (4), and the FIR filter (4) is only applied to the low frequency components of the input digital signal.³ Therefore, the combination of Eberbach and Fujimori with Yamada, requires that both the down-sampling processing circuit (3) and FIR filter (4) of Yamada be somehow integrated into the cross-talk canceller of Fujimori.

However, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). In this instance, the suggested combination of references would require substantial reconstruction and redesign of the cross-talk canceller described in Fujimori as well as a change in the basic principle under which the cross-talk canceller was designed to operated as now it must down-sample in order to use the FIR filter of Yamada.

¹ See the outstanding Office Action at page 7, item 2.

² Yamada at column 2, line 37 - column 3, line 8; see also Figure 1.

³ Yamada at column 3, lines 20-40.

Further, Yamada describes that the FIR filter (4) is applied only to the low frequency components of the digital signal because an FIR filter designed to be applied to the whole frequency band of the digital signal would be too large in scale.⁴ Thus, Yamada also teaches away from using the claimed FIR filter by stating that such filters are too large in scale. Consequently, it would not be obvious to combine Eberbach, Fujimori and Yamada.

For the reasons discussed above, it is submitted that amended Claim 1, together with its corresponding dependent claims, is in condition for allowance.

Amended Claims 4 and 16-17 recite substantially similar features to those recited in amended Claim 1, and are in condition for allowance, together with their corresponding dependent claims, for substantially the same reason. Accordingly, it is respectfully requested that the rejection of Claims 1-2, 4-9, 13 and 16-17 under 35 U.S.C. § 103(a) be withdrawn.

With regards to the rejection of Claims 3, 12 and 14-15 under 35 U.S.C. § 103(a), this rejection relies on the combination of Eberbach, Fujimori and Yamada, which, as discussed above, is not obvious. Therefore, it is respectfully submitted that the rejection of Claims 3, 12 and 14-15 under 35 U.S.C. § 103(a) is improper and should be withdrawn.

The remaining rejections rely on combinations of Eberbach and Fujimori with Packard or Hirade. However, all of these references fail to disclose the claimed FIR filter incorporated into Claims 10 and 11 by way of their dependency from amended Claim 4. Specifically, no combination of Eberbach, Fujimori and Packard discloses the FIR filter recited in Claim 10, and no combination of Eberbach, Fujimori and Hirade discloses the FIR filter recited in Claim 11. Accordingly, it is respectfully requested that the rejections of Claim 10 and Claim 11 under 35 U.S.C. § 103(a) be withdrawn.

⁴ Yamada at column 3, lines 35-45.

For the reasons discussed above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance for Claims 1-2 and 4-17 is earnestly solicited.


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